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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/457,929	12/08/1999	JACK CHIHCHIEH YAO	A-64873-1/AJ	8226

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EXAMINER	
LUND, JEFFRIE ROBERT	
ART UNIT	PAPER NUMBER
1763	

DATE MAILED: 01/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/457,929	YAO ET AL.
	Examiner	Art Unit
	Jeffrie R. Lund	1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 December 2003*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4,6,8,10 and 11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,6,8,10 and 11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 October 1999* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 3, 4, 6, 8, 10, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over McDiarmid US patent 5,242,501, in view of Grabmaier et al, US Patent 3,151,006.

McDiarmid teaches a circular plate susceptor (wafer carrier) 216, 316 that has a flat edge extending around the circumference of the plate, and a circular recess center region 220, 320 having a recessed bottom surface 222, 322 and including an upwardly inclined surface 221, 321 around the periphery of the recess bottom. The substrate is supported by a portion of the upwardly inclined surface and is spaced apart from the recessed bottom surface, such that, the substrate is supported by the wafer carrier only around the periphery edge of the substrate (see column 4 lines 65-67). McDiarmid also teaches that the dimensions of the susceptor can be optimized to fit a variety of size substrates, and the space between the substrate and susceptor can be optimized to control the heat flow from the susceptor to the substrate. (Entire document)

McDiarmid does not teach that the wafer carrier is made out of silicon carbide, large-grained polycrystalline silicon or silicon/silicon carbide alloy, the edge region has a width of 5 to 25 mm, the upwardly inclined surface is inclined at an angle of 5° to 45°,

specifically, 10°, the recess is 200 mm or 300 mm (to fit a 200 or 300 mm substrate), or that the space between the back of the substrate is between 0.15 mm to 0.5 mm, specifically, 0.25 mm.

Grabmaier et al teaches replacing a carbon (graphite) carrier rod (wafer carrier) with a carrier rod (wafer carrier) made of highly pure silicon to prevent contamination of the wafer.

Silicon carbide, large-grained polycrystalline silicon and silicon/silicon carbide alloy are all well known materials of construction used in semiconductor processing apparatus, and all have been used for many years. Furthermore, graphite is known to introduce contaminants into the chamber i.e. carbon and is very vulnerable to chemical attack i.e. etching or oxidation.

The motivation for making the susceptor of MacLeish out of silicon carbide, large-grained polycrystalline silicon or silicon/silicon carbide alloy, as taught by Grabmaier et al or as is known in the art, is to provide an alternate and equivalent material of construction or an alternate and superior material of construction that is more stable and chemically inert to the reaction gases; and to prevent contamination of the wafer by the carbon in the holder.

The motivation for sizing the recess to a specific size is to hold a specific size substrate, the motivation for optimizing slope of the incline and therefore the size of the space between the substrate and the susceptor is to optimize the heat flow between the susceptor and the substrate, both of which are taught by McDiarmid. The motivation for optimizing the size of the flat region is to optimize the heating of the outer edge of the

wafer and optimizing the gas flow across the substrate. Furthermore, it was held in *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984), by the Federal Circuit that, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device. (Also see MPEP 2144.04 (d))

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention was made to: make the susceptor of McDiarmid out of silicon carbide, large-grained polycrystalline silicon or silicon/silicon carbide alloy as taught by Grabmaier et al or as is known in the art; size the recess to 200 or 300 mm; make the upwardly inclined surface an angle of 5° to 45°, specifically, 10°, to size the space between the susceptor to 0.15 to 0.5 mm, specifically, 0.25 mm; and to size width of the flat area of the susceptor to 5 to 25 mm.

3. Claims 1, 3, 4, 6, 8, 10, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue et al, 5,677,253, in view of McDiarmid US patent 5,242,501.

Inoue et al teaches a circular wafer holding member 1 made of aluminum nitride (entire document).

Inoue et al does not teach a circular plate susceptor (wafer carrier) that has: a flat edge extending around the circumference of the plate; a circular recess center region having a recessed bottom surface, which includes an upwardly inclined surface around the periphery of the recess bottom that supports a wafer, spaced apart from the

recessed bottom surface, such that, the substrate is supported by the wafer carrier only around the periphery edge of the substrate; the edge region has a width of 5 to 25 mm, the upwardly inclined surface is inclined at an angle of 5° to 45°, specifically, 10°, the recess is 200 mm or 300 mm (to fit a 200 or 300 mm substrate), or that the space between the back of the substrate is between 0.15 mm to 0.5 mm, specifically, 0.25 mm.

McDiarmid teaches a circular plate susceptor (wafer carrier) 216, 316 that has a flat edge extending around the circumference of the plate, and a circular recess center region 220, 320 having a recessed bottom surface 222, 322 and including an upwardly inclined surface 221, 321 around the periphery of the recess bottom. The substrate is supported by a portion of the upwardly inclined surface and is spaced apart from the recessed bottom surface, such that, the substrate is supported by the wafer carrier only around the periphery edge of the substrate (see column 4 lines 65-67). McDiarmid also teaches that the dimensions of the susceptor can be optimized to fit a variety of size substrates, and the space between the substrate and susceptor can be optimized to control the heat flow from the susceptor to the substrate. (Entire document)

The motivation for adding a flat edge extending around the circumference of the plate; a circular recess center region having a recessed bottom surface, which includes an upwardly inclined surface around the periphery of the recess bottom that supports a wafer, spaced apart from the recessed bottom surface, such that, the substrate is supported by the wafer carrier only around the periphery edge of the substrate to the holding member of Inoue et al as taught by McDiarmid is to prevent the substrate from

being warped and to reduce slip caused by the thermal gradients created by placing a substrate on a flat surface of wafer carrier.

The motivation for sizing the recess to a specific size is to hold a specific size substrate, the motivation for optimizing slope of the incline and therefore the size of the space between the substrate and the susceptor is to optimize the heat flow between the susceptor and the substrate, both of which are taught by McDiarmid. The motivation for optimizing the size of the flat region is to optimize the heating of the outer edge of the wafer and optimizing the gas flow across the substrate. Furthermore, it was held in *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984), by the Federal Circuit that, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device. (Also see MPEP 2144.04 (d))

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention was made to: add a flat edge extending around the circumference of the plate; a circular recess center region having a recessed bottom surface, which includes an upwardly inclined surface around the periphery of the recess bottom that supports a wafer, spaced apart from the recessed bottom surface such that the wafer is supported by the wafer carrier only around the periphery edge of the substrate to the wafer holding member of Inoue et al as taught by McDiarmid; size the recess to 200 or 300 mm; make the upwardly inclined surface an angle of 5° to 45°, specifically, 10°, to size the space

between the susceptor to 0.15 to 0.5 mm, specifically, 0.25 mm; and to size width of the flat area of the susceptor to 5 to 25 mm.

4. Claims 1-4, 6, 8, 10, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over MacLeish et al, US Patent 5,891,251, in view of Grabmaier et al, US Patent 3,151,006.

MacLeish et al teaches a circular plate susceptor (wafer carrier) 50 that has a flat edge extending around the circumference of the plate; a circular recess center region having a recessed bottom surface 51c and including an upwardly inclined surface 51b around the periphery of the recess bottom; and a support member (lift pin) 54 to engage the substrate. The substrate is supported by a portion of the upwardly inclined surface and is spaced apart from the recessed bottom surface (about 0.08-0.13 mm), such that, the substrate is supported by the wafer carrier only around the periphery edge of the substrate. (Entire document) MacLeish et al does not disclose any dimensions in the drawings, specification, or claims.

MacLeish et al does not teach that: the wafer carrier is made out of silicon carbide, large-grained polycrystalline silicon or silicon/silicon carbide alloy, the recess is 200 mm or 300 mm (to fit a 200 or 300 mm substrate), the space between the back of the substrate is between 0.15 mm to 0.5 mm, specifically, 0.25 mm, the upwardly inclined surface is inclined at an angle of 5° to 45°, specifically, 10°, or that the flat edge region of the susceptor is 5 to 25 mm wide.

Grabmaier et al teaches replacing a carbon (graphite) carrier rod (wafer carrier) with a carrier rod (wafer carrier) made of highly pure silicon to prevent contamination of the wafer.

Silicon carbide, large-grained polycrystalline silicon and silicon/silicon carbide alloy are all well known materials of construction used in semiconductor processing apparatus, and all have been used for many years. Furthermore, graphite is known to introduce contaminants into the chamber i.e. carbon and is very vulnerable to chemical attack i.e. etching or oxidation.

The motivation for making the susceptor of MacLeish out of silicon carbide, large-grained polycrystalline silicon or silicon/silicon carbide alloy, as taught by Grabmaier et al or as is known in the art, is to provide an alternate and equivalent material of construction or an alternate and superior material of construction that is more stable and chemically inert to the reaction gases; and to prevent contamination of the wafer by the carbon in the holder.

One of ordinary skill in the art at the time the invention was made after reading the specification of MacLeish et al would be motivated to build the apparatus of MacLeish et al and find the optimum dimensions for each of the parts of the apparatus to ensure that the apparatus would function as taught by MacLeish et al. Furthermore, it was held in *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984), by the Federal Circuit that, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative

dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device. (Also see MPEP 2144.04 (d))

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention was made to: make the susceptor of MacLeish out of silicon carbide, large-grained polycrystalline silicon or silicon/silicon carbide alloy as taught by Grabmaier et al or as is known in the art; size the recess to 200 or 300 mm; size the space between the susceptor to 0.15 to 0.5 mm, specifically, 0.25 mm; and to size the flat edge region of the susceptor to 5 to 25 mm.

5. Claims 1-4, 6, 8, 10, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Inoue et al, 5,677,253, in view of MacLeish et al, US Patent 5,891,251.

Inoue et al teaches a circular wafer holding member 1 made of aluminum nitride (entire document).

Inoue et al does not teach a circular plate susceptor (wafer carrier) that has: a flat edge extending around the circumference of the plate; a circular recess center region having a recessed bottom surface, which includes an upwardly inclined surface around the periphery of the recess bottom that supports a wafer, spaced apart from the recessed bottom surface, such that, the substrate is supported by the wafer carrier only around the periphery edge of the substrate; a support member to engage the substrate; the edge region has a width of 5 to 25 mm, the upwardly inclined surface is inclined at an angle of 5° to 45°, specifically, 10°, the recess is 200 mm or 300 mm (to fit a 200 or

300 mm substrate), or that the space between the back of the substrate is between 0.15 mm to 0.5 mm, specifically, 0.25 mm.

MacLeish et al teaches a circular plate susceptor (wafer carrier) 50 that has a flat edge extending around the circumference of the plate; a circular recess center region having a recessed bottom surface 51c and including an upwardly inclined surface 51b around the periphery of the recess bottom; and a support member (lift pin) 54 to engage the substrate. The substrate is supported by a portion of the upwardly inclined surface and is spaced apart from the recessed bottom surface (about 0.08-0.13 mm), such that, the substrate is supported by the wafer carrier only around the periphery edge of the substrate. (Entire document)

The motivation for adding a flat edge extending around the circumference of the plate; a circular recess center region having a recessed bottom surface, which includes an upwardly inclined surface around the periphery of the recess bottom that supports a wafer, spaced apart from the recessed bottom surface, such that, the substrate is supported by the wafer carrier only around the periphery edge of the substrate to the holding member of Inoue et al as taught by MacLeish et al is to provide an alternate and equivalent susceptor design as taught by MacLeish et al.

The motivation for sizing the recess to a specific size is to hold a specific size substrate, the motivation for optimizing slope of the incline and therefore the size of the space between the substrate and the susceptor is to optimize the heat flow between the susceptor and the substrate. The motivation for optimizing the size of the flat region is to optimize the heating of the outer edge of the wafer and optimizing the gas flow across

the substrate. Furthermore, it was held in *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984), by the Federal Circuit that, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device. (Also see MPEP 2144.04 (d))

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention was made to: add a flat edge extending around the circumference of the plate; a circular recess center region having a recessed bottom surface, which includes an upwardly inclined surface around the periphery of the recess bottom that supports a wafer, spaced apart from the recessed bottom surface such that the wafer is supported by the wafer carrier only around the periphery edge of the substrate to the wafer holding member of Inoue et al as taught by MacLeish et al; size the recess to 200 or 300 mm; make the upwardly inclined surface an angle of 5° to 45°, specifically, 10°, to size the space between the susceptor to 0.15 to 0.5 mm, specifically, 0.25 mm; and to size width of the flat area of the susceptor to 5 to 25 mm.

Response to Arguments

6. Applicant's arguments filed December 16, 2003 have been fully considered but they are not persuasive.

In regard to the argument that the benefits of the present invention are not inherent in the design and material of construction of the holder, the examiner

disagrees. A holder made of the same material having the same dimensions of the present invention must produce the same benefits and have the same effect. All of the above combinations provide the same design and material of construction as the present invention. Therefore, the combinations must provide the same benefit.

In regard to the argument that the present invention functions differently than the prior art carriers because they are comprised substantially of graphite, which exhibit anisotropic heating performance, such that the dimensions of the carrier expand differently in the different directional planes upon heating and permits deposition on the backside of the wafer, unlike the carrier of the present invention. Thus, *Gardner v. TEC Systems, Inc.* 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert denied, 469 U.S. 830, 225 USPQ 232 (1984) does not apply because the wafer holder as presently claimed does perform differently that the prior art devices, the examiner disagrees. The present rejections are based on a combination of two references, one teaching the design of the holder and the other teaching the material of construction. The argument ignores the reference teaching the material of construction. When taken as a whole, the holder taught in the prior art rejections and made to the same dimensions would function in the same manner as the presently claimed invention. Thus, *Gardner v. TEC Systems, Inc.* does apply and the present invention is not patentably distinct from the prior art device. Furthermore, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

In regard to the argument that "the mere fact that the materials of Inoue or Grabmaier can be combined, *arguendo*, with the shape of the susceptor of McDiarmid or MacLeish does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. In re Mills, 916 F.2d 680 (Fed. Cir. 1990). The court held that although a prior art device may be capable of being modified to run the way the apparatus is claimed, there must be a suggestion in the reference to do so. Id. at 682.", the examiner agrees. In the instant case McDiarmid specifically address the problems caused by placing a wafer on a flat susceptor (wafer carrier) like that of Inoue et al, specifically, preventing the substrate from being warped and to reduce slip caused by the thermal gradients created by placing the wafer on a flat surface of a wafer carrier. MacLeish et al teaches that graphite should not be exposed to the reactor environments by teaching that the susceptor should be coated with a more inert material such as silicon carbide. Grabmaier et al teaches replacing a carbon (graphite) susceptor with silicon susceptor to prevent carbon contamination of the wafer. Thus, the prior art suggests the desirability of the combination, and the combinations are proper.

In regard to the argument that combinations of McDiarmid, MacLeish et al, Inoue et al and Grabmaier et al are not concerned with isotropic heating to maintain contact with a substrate around its periphery to permit backseal applications as recited in Applicants claims, the examiner agrees. The fact that applicant has recognized another advantage which would flow naturally from following the suggestion of the prior art

cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985).

In regard to the arguments that the "susceptors in McDiarmid and MacLeish et al are selected to perform a certain function, i.e., to conduct RF energy", "that to substitute a different material would defeat the desirability of the specific materials taught by McDiarmid and MacLeish et al", and "Given the specific purpose of the materials, McDiarmid and MacLeish cannot be found to suggest a different material, and in the Applicant's view McDiarmid and MacLeish teach away from such a combination", the examiner disagrees. This argument is directed to the combination of McDiarmid or MacLeish et al in view of Grabmaier et al, since both McDiarmid and MacLeish et al use RF induction heating to heat the substrates. The material claimed in the present invention i.e., silicon carbide, silicon, and their alloys, like graphite is susceptible to induced RF currents, and thus will function in an RF induction heater. In fact, Grabmaier et al teaches replacing a carbon (graphite) susceptor with a silicon susceptor heated by an RF induction heater. Therefore, since the materials all function with an RF induction heater, and Grabmaier et al teaches using silicon instead of carbon (graphite) to prevent the contamination of the substrate, the combination is proper. Since, the combination of Inoue et al in view of McDiarmid or MacLeish et al does not modify the material of construction and deals only with the shape or design of the susceptor, the above arguments are moot.

In regard to the argument that the selection of material is not simple, or obvious, and there is no motivation to select a specific material, the examiner disagrees. The

selection of a material is a primary design criterion, and a basic part of any design process. One of ordinary skill in the art must determine the conditions to which the object i.e. holder will be exposed, and then select the proper material. If a cheap material i.e. graphite is not capable of functioning as required in a given environment then a more expensive material must be chosen. Graphite has been used for many years in the semiconductor processing apparatus art, and is well known for its susceptibility to chemical attack, which results in contamination of the processing environment. In fact, it is often coated with the claimed material to improve its chemical resistance and other physical properties as is shown in the art of record. As a result, graphite has been replaced in the art by other more chemically inert materials such as those claimed by the applicant. Silicon carbide, aluminum nitride, large-grained polycrystalline silicon or silicon/silicon carbide alloy are all frequently used in the art as carriers because of their chemical resistance. Despite their higher initial cost, their longer life and less contamination of the product, results in a lower long-term cost. Therefore, the motivation for replacing a graphite susceptor with another material is to prevent contamination of the substrate or prolong the life of the susceptor by choosing a material that is more chemically inert.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

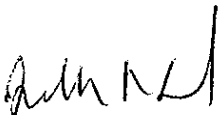
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrie R. Lund whose telephone number is (571) 272-1437. The examiner can normally be reached on Monday-Thursday (6:30 am-6:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on (571) 272-1439. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.



Jeffrie R. Lund
Primary Examiner
Art Unit 1763

JRL
January 13, 2004